**Design Document for IOMUX Driver**

 

# Outline

This document describes the IOMUX driver in Linux kernel of MVF TOWER BOARD (XTWR-VF600) with VF6XX SoC.

# Existing code to be changed

## Source

i.MX 6Solo SABRE-A BSP

arch/arm/plat-mxc/include/mach/iomux-mx6q.h

arch/arm/plat-mxc/include/mach/iomux-v3.h

arch/arm/plat-mxc//iomux-v3.c

arch/arm/mach-mx6/board-mx6q\_arm2.c

arch/arm/mach-mx6/board-mx6q\_arm2.h

## Modification

* arch/arm/plat-mxc/include/mach/iomux-vfxx.h

1. Source: arch/arm/plat-mxc/include/mach/iomux-mx6q.h
2. By using IOMUX\_PAD macro, define data combination for MUX\_MODE of each I/O pin. Name of definition will be \_VF6XX\_PAD\_PAD\_XXX and include the data below.

* IOMIXC\_SW\_MUX\_CTL\_PAD\_XXX Resister address/offset value
* IOMIXC\_SW\_MUX\_CTL\_PAD\_XXX[MUX\_MODE] Bit field value
* IOMUXC\_XXX\_SELECT\_INPUT Register address/offset value
* IOMUXC\_XXX\_SELECT\_INPUT[DAISY] Bit field value

1. Define PAD value for MUX\_MODE of each I/O pin. Combine with the definition mentioned above #1, name it as VF6XX\_PAD\_PAD\_XXX and create resource definition value for external call.

* arch/arm/plat-mxc/include/mach/iomux-vmvf.h

1. Source: arch/arm/plat-mxc/include/mach/iomux-v3.h
2. Modify IOMUX\_PAD definition and resource definition for IOMUXC register setting defined in the iomux-v3.h to fit for MVF SoC family.
3. Change ”v3” in the function name to ”vmvf”.

* arch/arm/plat-mxc/iomux-vmvf.c

1. Source: arch/arm/plat-mxc/iomux-v3.c
2. Modify to write definition value that is created with iomux-vfxx.h to IOMUXC register.
3. Change ”v3” in the function name declared in iomux-v3.c to ”vmvf”.

* arch/arm/mach-mx6/board-twr\_vf600.h

1. Source: arch/arm/mach-mx6/board-mx6q\_arm2.h
2. Based on the definition value of iomux-vfxx.h, create PAD setting array for primary/secondary of twr-vf600.

Functions to be enabled are as follows.

Primary:

SDHC, FTM, SAI, SCI, I2C, DSPI, RMII, NFC, QSPI, DCU, ADC and such  
Secondary:

ENET, SCI, FTM, CAN and such

1. Switchover of primary/secondary is done by kernel configuration.

* arm/arm/mach-mx6/board-twr\_vf600.c

1. Source: arch/arm/mach-mx6/board-mx6q\_arm2.c
2. Implement IOMUXC register initialization processing

IOMUXC register initialization is carried out by passing setting array made by board-twr\_vf600.h to register setting value implemented for iomux-vmvf.c.

# API of new functions

None

# Expected register settings

See attached excel for mode setting of primary/secondary and PAD register setting.

\*TBD for PAD resister setting.

# Expected functionality and usage

Call at the time of board initialization processing and initialize IOMUXC register.

# Any other pertinent information

None